CAL-NEVA AFS COMMENTS ON CALFED ECOSYSTEM RESTORATION PROGRAM PLAN

V.1. VISIONS FOR ECOSYSTEM ELEMENTS - SPECIES VISION FOR STEELHEAD

Pg. 156 - Introduction

The California Fish and Wildlife Plan estimated that there were 40,000 adult steelhead in the Central Valley drainages in the late 1950's. This is probably a more accurate estimate than the 30,000 that is stated in the document. Hallock et al. (1961) estimated the average annual steelhead run size in the Sacramento River system above the mouth of the Feather River in the 1950's was 20,540 adults. The above two cited documents are more reliable indicators of run size than the two documents that are cited in this paragraph.

The first sentence in the 2nd paragraph states that the recent spawning populations of steelhead are less than 10,000 adult fish. It should be noted that this figure is the *total* number of adults (hatchery plus natural fish) for the entire system (see McEwan and Jackson 1996, pg. 43 and 45). The number of natural spawners is undoubtedly much less, and is probably no more than a few thousand fish.

A description of historical and present distribution should be included. Steelhead ranged throughout the Sacramento River system (both east- and west-side tributaries) and the San Joaquin River system. Historical documentation exists that show that steelhead were widespread throughout the San Joaquin River system, and there is substantial documentation that remnant steelhead populations are extant in some tributaries in this system (see comments on Ecosystem Restoration Program Plan, Volume 2, San Joaquin River Ecological Zone for more detail)

Pg. 156 - Resource Description

Information regarding Endangered Species Act Status Review and listing decisions needs to be updated. Also, it should be noted in this section that the single-most limiting factor for steelhead populations in the Central Valley is blocked access to an estimated 82% to 95% of the historical spawning and rearing habitat (Reynolds et al. 1993; Yoshiyama et al. 1996) due to impassable dams. Consequently, steelhead are relegated to spawning and rearing in low elevation reaches that were historically only used as migration corridors, and this document should acknowledge that this is the greatest stressor for steelhead on a system-wide basis.

Pg. 157 - 2nd pgph

This paragraph needs to be updated. The National Marine Fisheries Service (NMFS) has completed a genetic analysis of steelhead samples collected from the Stanislaus River, the American River, Nimbus Hatchery, and Feather River Hatchery. This analysis augmented the previous genetic analysis done as part of the West Coast Steelhead Status Review, which included

Coleman National Fish Hatchery and Mill and Deer creek steelhead. This new analysis found that "all of the Central Valley samples, except for those from the American River, cluster closely together and form a genetic group distinct from all coastal samples. In contrast, the American River samples [wild fish and those from Nimbus Hatchery]....are genetically most similar to a sample from the Eel River" (NMFS 1997) Thus, the last sentence of the paragraph should be modified to state "Recent data from genetic studies show that samples of steelhead from Deer and Mill creeks, *the Stanislaus River*, and Coleman *and Feather River* hatcheries are well differentiated from all other samples of steelhead from California.

On March 13, 1998, NMFS made a final ESA determination for the Central Valley steelhead Evolutionarily Significant Unit (ESU). The ESU includes all anadromous waters of the Sacramento and San Joaquin river systems (excluding that portion of the San Joaquin River system upstream of the confluence of the Merced River). It should be noted that the NMFS Biological Review Team concluded, based on biological, abundance, and population trend information, that this ESU warranted endangered status, and NMFS proposed to list this ESU as Endangered (NMFS 1997). However, after consideration of state and federal conservation efforts, NMFS concluded that this ESU warranted listing as a threatened species. This underscores the fact that Central Valley steelhead populations are severely depressed, and we believe that management efforts should treat this stock as a *de facto* endangered species.

Pg. 157 - Vision

This section is weak and contains very little that is specific to steelhead. Much of the information is generic and reflects a lack of understanding of the differences in life history between salmon and steelhead and the resultant management and restoration implications. It is our opinion that none of the general conservation measures identified in this section will achieve substantial or long-term restoration of Central Valley steelhead populations. If CALFED is to be successful in its objectives for steelhead, it must address the fact that nearly all of the historical spawning and rearing habitat is presently inaccessible, and provide specific measures for steelhead restoration that address this issue. We believe that there are only two restoration scenarios that have the potential to be successful in restoring Central Valley naturally spawning steelhead populations: 1) restore access to historical habitat above the large dams on some major tributaries; and 2) dedicate more water in storage to provide adequate tailwater habitat conditions (primarily water temperatures) year-round below the dams.

Pg. 158 - last pgph

The statement "juvenile salmonid passage at large dams in the Columbia River basin has had little success..." is not entirely correct. Although juvenile passage at Columbia River dams has been cited as a major factor in the decline of Columbia River salmon stocks, steelhead have fared much better, as evidenced by the persistent runs of steelhead into upper Columbia River drainages and their relatively healthy populations, compared to salmon. Juvenile passage of steelhead at these facilities is a stressor for steelhead and has led to population declines, but these measures have been successful to some extent. We recommend that this sentence be deleted. It

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should be stated that a smolt collection facility above the major reservoirs will probably need to be implemented to ensure that emigration is successful.

VOLUME II. ECOLOGICAL ZONE VISIONS

General Comment

The draft EIR/EIS is deficient because the ERPP fails to acknowledge the presence of a federally listed threatened species (Central Valley steelhead) over a significant portion of its range (see comments on San Joaquin Ecological Zone) and fails to identify programmatic actions that will mitigate for other actions or recover steelhead populations.

The document also largely fails to recognize the life history differences between Central Valley chinook salmon and steelhead, and assumes that measures implemented to restore chinook salmon will benefit steelhead as well. This assumption is invalid and will result in inadequate measures to restore Central Valley steelhead populations. The single-most limiting factor for steelhead populations in the Central Valley is lack of access to 82% to 95% of the historical spawning and rearing habitat (Reynolds et al. 1993; Yoshiyama et al. 1996) because of dams. Consequently, steelhead are relegated to spawning in low elevation reaches that were historically only used as migration corridors. This has had a much greater impact on steelhead than it has on chinook salmon because steelhead must rear in freshwater for one to three years before migrating to the ocean, as compared to fall-run chinook salmon which rear for only a few months before emigrating. Consequently, water temperatures for steelhead rearing must be suitable year-round. Under natural conditions (before water development), this did not occur in the lower reaches of the mainstem or the major tributaries, which is why steelhead utilize the smaller mid- to high-elevation tributaries for spawning and rearing. Because nearly all of their historical spawning and rearing habitat is located above impassable dams, steelhead have been relegated to spawning and rearing in mostly unsuitable habitat. This factor must be addressed if restoration of steelhead is to be achieved. There is an acute lack of identified measures throughout the individual Ecological Zone Visions that specifically address the issue of providing suitable temperatures for steelhead.

There needs to be some acknowledgment of the fact that severe fragmentation of naturally spawning steelhead populations has probably contributed to the overall decline. Central Valley steelhead populations are so disjunct that lack of dispersal from the historically more robust populations to smaller populations inhabiting relatively unimpacted stream systems (such as Mill and Deer creeks) may help to explain why these populations are not recovering. Recovery of steelhead populations in the larger tributaries (e.g. American, Feather, Yuba, and Stanislaus rivers) could help to reestablish other populations.

SACRAMENTO RIVER ECOLOGICAL ZONE

Page 133 last pgph

The vision for this zone of maintaining a flow pattern that emulates the seasonal hydrologic regime to the extent possible reflects a lack of understanding of the habitat requirements of juvenile steelhead and how the system has been modified to the detriment of steelhead populations. Restoring and maintaining natural flow patterns may benefit chinook salmon but emulating natural flow conditions will not benefit natural steelhead populations and will cause severe impacts to these populations. Because of the loss of historical steelhead spawning and rearing habitat due to impassable dams, natural populations are mostly relegated to spawning and rearing in low elevation habitats that were historically used only as migration corridors. Because of increased summer and fall hypolimnetic releases from reservoirs, flow and temperature conditions in the late summer and fall periods in these reaches can be more beneficial to steelhead than before the dams were built, and small numbers of natural steelhead are able to sustain themselves in these tailwater habitats because of this (at least in wet years when there is adequate releases of cold water). Inhospitable conditions in the lower reaches in the pre-dam years was not an overriding impact to steelhead because they had access to the cooler water habitats of the mid and high elevation tributaries. Mimicking of natural flows, and resultant minimal flows in the late-summer and fall period, without providing access to historical habitat, will most likely eliminate naturally spawning steelhead from the mainstem and major tributaries.

The AFRP's targets of 3,200 to 5,500 cfs releases from October through April will not provide any great benefit to steelhead in this reach unless adequate releases of cold water are made that will sustain juvenile rearing habitat through the summer and fall.

Page 138 2nd pgph

It should be stated in this section that summer and fall stream temperatures are more critical for steelhead than they are for most races of chinook salmon because steelhead juveniles must rear for more than one year in fresh water, hence adequate temperatures must be maintained year-round.

Page 138 - Eliminating or Reducing Stressors

Why is there no mention of reducing or eliminating high water temperatures? As stated correctly in the document, this is a very important stressor, especially for steelhead.

Pages 145-146, Implementation Objectives, Targets, and Programmatic Actions - Central Valley Streamflows

Target 1 is to more closely emulate seasonal streamflow patterns and Target 2 specifies maintenance of base flows of 6,000 to 8,000 cfs during the fall period. The focus of these actions is to provide suitable baseflows to benefit chinook salmon. This will not provide necessary

conditions to restore steelhead because there are no targets or actions specified to maintain suitable flows for rearing steelhead during summer and fall. Statements on page 146 appear to argue against making adequate releases in the fall period: "the chinook salmon and steelhead that spawn in the fall have eggs in the river that...can be severely damaged when wintertime releases...are dropped below the fall release levels...The fall flow needs to consider the need for carryover storage to provide temperature control in the following year." Given that steelhead do not spawn in the fall as stated, this argument is true only for chinook salmon. This management practice of sacrificing steelhead rearing habitat to maintain adequate cold water storage for fall-run chinook salmon migration has been prevalent on major tributaries, such as the American River below Nimbus Dam, and has been one reason for the decline of Central Valley steelhead.

Page 149 - Central Valley Stream Temperatures, 7th pgph

The bias towards chinook salmon restoration is apparent in the statement "With [the Shasta temperature control device], warm water could be withdrawn from the upper lake levels when needed, while conserving the deeper, cold water for release when it would most benefit chinook salmon." If this device is used only to provide benefits to chinook salmon, then further impacts to the steelhead population could result from inadequate releases of cold water.

Pages 163-164, Implementation Objectives, Targets, and Programmatic Actions - Species: Steelhead Trout

This section is very weak, contains no specific measures for steelhead restoration, and is repeated verbatim in the corresponding sections for the other Ecological Zones. "Maintain the cohort replacement rate for steelhead trout above 1.0" is a generic, meaningless statement that can be made for all species/stocks that are targeted for recovery. There are no measures described in this section that support the statement that "Actions in the Sacramento River Ecological Zone have been designed to specifically restore steelhead or their habitat" All of the programmatic actions that are listed on page 164, 2nd paragraph are generic, repeated verbatim in the other species' descriptions and for all the other Ecological Zones, and, most importantly, will not likely result in significant restoration of Central Valley steelhead. Unless specific measures are identified that will address the issue of steelhead rearing habitat loss and provisions are made to provide suitable conditions, primarily water temperature, for juvenile steelhead significant restoration of steelhead populations will not be achieved. The reliance on other measures that are proposed to be implemented as stated on page 164, 6th paragraph reflects a lack of understanding of steelhead life history characteristics, how these differ from other species, and the measures necessary to recover steelhead populations. For example, steelhead use the mainstem Sacramento River below Red Bluff as a migration corridor only, hence restoration of riparian woodlands along the Sacramento River, as stated, will not result in significant recovery of steelhead populations.

Page 164 5th pgph

see comment, page 157 - 2nd paragraph, of Volume.1. VISIONS FOR ECOSYSTEM ELEMENTS - SPECIES VISION FOR STEELHEAD

NORTH SACRAMENTO VALLEY ECOLOGICAL ZONE

Page 185 - Eliminating or Reducing Stressors

Why is there no mention of reducing or eliminating high water temperatures? As stated correctly in the document, this is a very important stressor, especially for steelhead

Page 187 - Artificial Propagation of Fish

An Objective/Programmatic Action that could be added would be to determine if a founding broodstock of steelhead could be derived from native Central Valley resident rainbow trout that may exist in the headwaters of some tributaries. If genetic analysis determines that a suitable population exists in the headwaters, then a founding population could be captured and placed in a hatchery for captive breeding purposes. Experiments could be undertaken to determine if anadromous steelhead could be derived from the experimental hatchery population. If this is successful, then restoration of native Central Valley steelhead may be achievable.

Pages 190-191, Implementation Objectives, Targets, and Programmatic Actions - Species: Steelhead Trout

see comment, page 163-164 - Implementation Objectives, Targets, and Programmatic Actions - Species: Steelhead Trout

Page 191 3rd pgph

see comment, page 164, 5th paragraph

BUTTE BASIN ECOLOGICAL ZONE

Page 234 - Eliminating or Reducing Stressors

Why is there no mention of reducing or eliminating high water temperatures? As stated correctly in the document, this is a very important stressor, especially for steelhead

Page 244 Target 4

Why is the proposed restoration of access for steelhead restricted to the reach below Centerville Head Dam? Before water development, steelhead likely ascended Butte Creek as far upstream as Butte Meadows (Yoshiyama et al. 1996). It appears that this is yet another measure designed for chinook salmon restoration, given that the Centerville Head Dam area is the likely historical upstream terminus of chinook salmon distribution in Butte Creek (Yoshiyama et al. 1996), with little thought given to specific steelhead restoration needs.

Pages 247-248, Implementation Objectives, Targets, and Programmatic Actions - Species: Steelhead Trout

see comment, page 163-164 - Implementation Objectives, Targets, and Programmatic Actions - Species: Steelhead Trout

Page 247 9th pgph

see comment, page 164, 5th paragraph

FEATHER RIVER/SUTTER BASIN ECOLOGICAL ZONE

Page 272 - Eliminating or Reducing Stressors

Why is there no mention of reducing or eliminating high water temperatures? As stated correctly in the document, this is a very important stressor, especially for steelhead

Page 272 - Programmatic Action 1A

This action must include providing adequate funds and personnel to staff the Hallwood-Cordua fish screening facility year-round. Currently, because of lack of funds, the DFG ceases operation of the fish screening facility on June 1 (after the chinook salmon emigration period), and significant numbers of juvenile steelhead are entrained into the diversion after this time.

Page 274 - Artificial Propagation of Fish

see comment page 187 - Artificial Propagation of Fish

Pages 277-278, Implementation Objectives, Targets, and Programmatic Actions - Species: Steelhead Trout

see comment page 163-164: Implementation Objectives, Targets, and Programmatic Actions.

AMERICAN RIVER BASIN ECOLOGICAL ZONE

Page 294 - Eliminating or Reducing Stressors

Why is there no mention of reducing or eliminating high water temperatures? As stated correctly in the document, this is a very important stressor, especially for steelhead

Pages 305-307, Implementation Objectives, Targets, and Programmatic Actions - Central Valley Stream Temperatures

We are pleased to see specific objectives, programmatic actions, and targets for providing suitable summer and fall water temperatures in the lower American River for juvenile steelhead rearing. This level of detail and analysis for steelhead restoration measures is lacking in the other Ecological Zone sections.

Page 311 - Artificial Propagation of Fish

see comment page 187 - Artificial Propagation of Fish

Pages 313-314, Implementation Objectives, Targets, and Programmatic Actions - Species: Steelhead Trout

see comment page 163-164: Implementation Objectives, Targets, and Programmatic Actions.

SAN JOAQUIN RIVER ECOLOGICAL ZONE

Page 373 2nd pgph

On March 13, 1998, the National Marine Fisheries Service (NMFS) listed the Central Valley Steelhead Evolutionarily Significant Unit (ESU) as threatened under the federal Endangered Species Act. This ESU includes the anadromous reaches of the Stanislaus, Tuolumne, and Merced rivers and the San Joaquin River downstream of its confluence with the Merced River. Despite this, the draft ERPP states that "the presence of a distinct anadromous run of steelhead in the [San Joaquin] basin has not been confirmed". Presently, the draft EIR/EIS is deficient because this document fails to acknowledge the presence of a federally listed threatened species in the affected area. Given the fact that the National Marine Fisheries Service has stated that a steelhead run exists in the San Joaquin River system (NMFS 1998) and has listed them under the federal Endangered Species Act, this is a serious deficiency. In our opinion, there is sufficient evidence to demonstrate the existence of steelhead in the San Joaquin River system (see CDFG 1997).

We do not agree with the statement that "the presence of a distinct anadromous run of steelhead in the basin has not been confirmed". We agree that the number of captured smolts has been relatively few, but, it should be kept in mind that the number captured does not represent the entire juvenile outmigration because the sampling equipment only samples a small portion of the river flow. A better indicator of a presence of a run is the fact that steelhead smolts have been documented in the system consistently for the past four years. This indicates that natural production is still occurring and the run is still extant.

The statement that "genetic studies are under way to determine whether the steelhead and rainbow trout in the San Joaquin River basin are a distinct anadromous run, a resident population, or stray steelhead originating from the Sacramento River basin" is partially incorrect. Of the numerous genetic analysis that have been done, none have been able to find markers

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differentiating resident rainbow trout from the anadromous forms. This is a good indication that the two forms comprise a single interbreeding population in specific stream systems.

The genetic analysis that you refer to has been completed. NMFS performed a genetic analysis of additional steelhead samples collected from the Stanislaus River, the American River, Nimbus Hatchery, and Feather River Hatchery. This analysis augmented the previous analysis done on samples from Coleman National Fish Hatchery and Mill and Deer creeks. This new analysis found that the Stanislaus River population is very similar to the Coleman, Feather River Hatchery, Deer Creek and Mill Creek populations and together they form a genetic group distinct from all coastal samples of steelhead. In contrast, the American River samples (wild fish and those from Nimbus Hatchery) are genetically most similar to a sample from the Eel River (NMFS 1997). Given that Nimbus Hatchery steelhead from the American and Mokelumne rivers (steelhead reared at Mokelumne River Hatchery are obtained from Nimbus Hatchery) are the closest populations in proximity to the Stanislaus River, one could surmise that if the Stanislaus River population was derived from straying, it would most likely have a similar genotype to Nimbus Hatchery steelhead. However, the Stanislaus River population is most similar to other Central Valley populations, which are also distinct from all other west coast steelhead populations examined (including Nimbus Hatchery steelhead), indicating that this population could be representative of native Central Valley steelhead. In this regard, they could be highly "distinct".

The question of "distinctness" is highly subjective, and determining whether a San Joaquin steelhead run is "distinct" before acknowledging that a run exist holds it to a higher standard than for other basins; i.e. we know that a steelhead run exists in the American River, and we know that it probably is not "distinct", yet CALFED acknowledges that a run still exists here and has recommended programmatic actions for restoration.

Pages 390, Implementation Objectives, Targets, and Programmatic Actions - Species

The draft EIR/EIS is deficient because it does not identify any implementation objectives, targets, and programmatic actions for steelhead, a federally listed threatened species.

EAST SAN JOAQUIN BASIN ECOLOGICAL ZONE

Page 400, last pgph

The draft ERPP states that a "distinct anadromous run of steelhead on the lower Stanislaus River has not been confirmed but is suspected". Presently, the draft EIR/EIS is deficient because it fails to acknowledge the presence of a federally listed threatened species in the affected area. Given the fact that the National Marine Fisheries Service has stated that a steelhead run exists in the Stanislaus River system (NMFS 1998) and has listed them under the federal Endangered Species Act, this is a serious deficiency.

We do not agree with the statement that "the presence of a distinct anadromous run of steelhead on the lower Stanislaus River has not been confirmed...". In our opinion, there is

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sufficient evidence indicating that steelhead exist in the Stanislaus River (see CDFG 1997). Further, the above statement is contradicted by the succeeding statements that "every year a small number of juvenile rainbow trout are caught in rotary screw traps at the mouth of the river. These fish show signs of smolting and appear to be migrating out of the system". What further evidence is needed that a naturally-spawning steelhead population exist, other than the presence, over consecutive years, of juvenile rainbow trout that have obvious smolt characteristics and are actively emigrating?

The statements that "a small number of steelhead smolts are also caught each year in the trawl surveys at Mossdale [and] it is unknown if they these fish are ...resident rainbow trout or strays from another basin" does not make sense. Rainbow trout that exhibit smolt characteristics and are actively migrating are steelhead and cannot be "residents" by definition, and juvenile steelhead do not readily "stray" between basins.

Most of the fish captured at the rotary screw traps in the lower Stanislaus River didn't just "show signs of smolting" but were obvious smolts. These traps were operated by personnel from S.P. Cramer and Associates, and they assign a "smolt index" value from 1 to 3 for all salmon and steelhead captured, 1 being an obvious parr and 3 being an obvious smolt. Most of the juvenile steelhead captured were assigned a value of 3 (date from S.P. Cramer and Associates). So far in 1998, 15 rainbow trout ranging between 215 and 299 mm have been captured in the in the lower Stanislaus and all were assigned a smolt index value of 3 (Doug Demko, S.P Cramer and Associates, pers. comm.).

Other evidence that a steelhead population is extant in the Stanislaus River includes (see CDFG 1997)::

- DFG fishery biologists have documented successful reproduction (juvenile out-migrants) since 1988.
- Anglers in the Oakdale area report occasional steelhead from 2 to 10 pounds and creel census information obtained by the DFG documents the catch of rainbow trout greater than 20 inches (DFG data).
- Examination of limited scale samples from these larger trout by DFG biologists show an accelerated growth period typical of estuary or ocean residence (Bill Loudermilk, DFG Senior Biologist, pers. comm.).
- An illegally harvested 28-inch steelhead was confiscated by Fish and Game Wardens in 1995.

In our opinion, the presence of smolting juveniles and the above statements provide sufficient evidence that a self-sustaining steelhead population exists in the Stanislaus River. Further, adequate habitat conditions, primarily flows and water temperatures, exist year-round

below Goodwin Dam to support a steelhead population, hence the Stanislaus River represents the greatest potential for steelhead recovery in the San Joaquin River system.

Regarding the genetic analysis, see comments on page 373, 2nd pgph.

Page 403, 1st pgph

The draft EIR/EIS is deficient because the draft ERPP fails to acknowledge the presence of a federally listed threatened species in the Tuolumne River and does not identify programmatic actions to mitigate for other actions or restore populations of steelhead.

Page 406, 7th pgph

The draft EIR/EIS is deficient because the draft ERPP fails to acknowledge the presence of a federally listed threatened species in the Merced River and does not identify programmatic actions to mitigate for other actions or restore populations of steelhead.

Page 421, 5th pgph

What is the rationale for the statement that "Salmon flows will likely continue to form the core of flow needs..." for the Stanislaus, Tuolumne, and Merced rivers, given that steelhead in these rivers are a listed species and chinook salmon are not?

Page 426, Central Valley Stream Temperatures

We note that Target 1 specifies temperature targets for the fall, winter, and spring periods. Notably absent are programmatic actions that would provide suitable temperatures to sustain juvenile steelhead through the summer. Worse, the language in the *Rationale* suggests that significant releases *should not* be made during the summer so that there is sufficient cold water in reservoir storage to provide for fall migration of chinook salmon, despite the acknowledgment in previous sections that "steelhead depend on cool summer water temperatures" for juvenile rearing. This management practice of sacrificing steelhead rearing habitat to maintain adequate cold water storage for fall-run chinook salmon has been prevalent on major tributaries, such as the American River below Nimbus Dam, and has been one reason for the decline of Central Valley steelhead. It is disturbing to see this practice advocated in this document.

Page 429- Dams, Reservoirs, Weirs, and Other Structures

An implementation objective to examine the feasibility of restoring access to habitats above New Melones, New Don Pedro, and Lake McClure reservoirs should be included.

Page 430 - Artificial Propagation of Fish

see comments page 187, Artificial Propagation of Fish

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Pages 432, Implementation Objectives, Targets, and Programmatic Actions - Species

This section is very weak, contains no specific measures for steelhead restoration, and is repeated verbatim in the corresponding sections for the other Ecological Zones. "Maintain the cohort replacement rate for steelhead trout above 1.0" is a generic, meaningless statement that can be made for all species/stocks that are targeted for recovery.

Page 433, pgph 2

The statement "steelhead use of the streams in this ecological zone is uncertain" is contrary to the aforementioned ESA decision on steelhead, hence the draft EIR/EIS is deficient.

Page 433, pgph 4

The statement "*If* steelhead are included as a restorable species..." (emphasis added) fails to acknowledge CALFED's requirement to mitigate for federally listed species, hence the draft EIR/EIS is deficient.

PROGRAM GOALS AND OBJECTIVES

Page A-2

We suggest you add the following problem statement under Problem Statement A - Important Aquatic Habitats:

Lack of rearing habitat for salmonids that are dependent on adequate year-round habitat conditions (e.g. steelhead and spring-run chinook salmon) is a major factor in their decline. This has resulted from dam construction that has eliminated access to 82% to 95% of historical spawning and rearing habitat. Because steelhead and spring-run chinook salmon are now relegated to spawning and rearing in habitats that are frequently suboptimal (particularly water temperatures) these species have declined to a greater degree than other salmonids in the system.

Page A-8

We suggest you add the following Ecosystem Quality Objective under Objective Statement A - Improve and Increase Aquatic Habitats:

A3. Restore access to historical habitats above presently impassable dams for anadromous salmonids, where feasible. This will allow species that are dependent on adequate year-round habitat conditions to access habitats where this occurs naturally. This will remove a significant factor causing their decline, and in turn, will alleviate the need to expend water, money, and efforts to artificially maintain these conditions in the lower reaches.

Literature Cited

Calif. Dept. of Fish and Game. 1994. Memo from D. McEwan to T. Mills dated 9/22/94.

Calif. Dept. of Fish and Game. 1997. Letter from Jacqueline Schafer to Garth Griffen dated 1/6/97 (DFG Comments on the Proposed Rule to list west coast steelhead under the Endangered Species Act).

Hallock, R. J., W.F. Van Woert, and L. Shapovalov. 1961. An evaluation of stocking hatchery-reared steelhead rainbow trout in the Sacramento River system. Calif. Dept. of Fish and Game. Fish Bulletin no. 14.

McEwan and Jackson, 1996. Steelhead Restoration and Management Plan for California. Calif. Dept. of Fish and Game.

National Marine Fisheries Service. 1997. Status Review Update for Deferred and Candidate ESU's of West Coast Steelhead.

National Marine Fisheries Service. 1998. Federal Register Notice announcing final listing decision for West Coast steelhead. 63(53). 3/19/98.

Nielsen, J.L. 1994. Molecular genetics and stock identification in Pacific salmon (*Oncorhynchus* spp.). Ph.D. Thesis. Univ. of California, Berkeley. 167 pp.

Nielsen, J.L., Carpanzano, C. Fountain, M.C., and C.A. Gan. Mitochondrial DNA and nuclear microsatellite diversity in hatchery and wild *Oncorhynchus mykiss* from freshwater habitats in southern California. Trans. Amer. Fish. Soc. in press.

Reynolds, F.L., Mills, T.J., Benthin, R., and A. Low. 1993. Restoring Central Valley streams: a plan for action. CDFG, Inland Fisheries Division.

Yoshiyama, R.M., E.R. Gerstung, F.W. Fisher, and P.B. Moyle. 1996. Historical and present distribution of chinook salmon in the Central Valley drainage of California. Sierra Nevada Ecosystem Project: Final report to Congress, vol.III. Centers for Water and Wildland Resources, Univ. Cal. Davis. pg. 309-361.

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